SEP 1 1 1995

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September 8, 1995

Mr. Chuck Schwer
Sites Management Section
Hazardous Materials Management Division
Department of Environmental Conservation
Agency of Natural Resources
103 South Main Street
West Building
Waterbury, VT 05671-0404

SUBJECT: 0004
Contract No.: DACW33-91-D-
Delivery Order No.: 012
Final Site Inspection Prioritization Report
St. Johnsbury Dump
St. Johnsbury, Vermont
TDD No.: 9401-64-CCX
CERCLIS No.: VTD988366142

DOCUMENT NO.: 6101-012-ST-0420

Dear Mr. Schwer:

Two copies of the Final Site Inspection Prioritization Report for the St. Johnsbury Dump, in St. Johnsbury, Vermont are enclosed. If you have any comments or questions regarding this submittal, please contact me at (617) 742-2659.

Very truly yours,

CDM FEDERAL PROGRAMS CORPORATION

David L. Hill
Delivery Order Manager

Approved:

for Julia M. Nault
Boston Branch Manager

DLH/ebw

Attachment

cc: Sharon Hayes, EPA Work Assignment Manager (letter only)
Mark Klitzke, CDM Federal Site Manager

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Final Site Inspection Prioritization Report

St. Johnsbury Dump
St. Johnsbury, Vermont

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY, Region I
Waste Management Division
Boston, MA

Delivery Order No.:	012
CERCLIS No.:	VTD988366142
TDD No.:	9401-64-CCX
Contract No.:	DACW33-91-D-0004
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St. Johnsbury, Vermont

CERCLIS No.VTD988366142
TDD No. 9401-65-CCX
Document No. 6101-012-FR-0418

INTRODUCTION

CDM Federal Programs Corporation (CDM Federal), in coordination with the New England Division, U.S. Army Corps of Engineers (ACOE), was requested by the U.S. Environmental Protection Agency (EPA) Region I Waste Management Division to perform a Site Inspection Prioritization (SIP) of the St. Johnsbury Dump in St. Johnsbury, Vermont. Tasks were conducted in accordance with ACOE Contract No. DACW33-91-D-0004, the SIP scope of work dated April 28, 1994, and technical specifications provided by ACOE under Delivery Order No. 012, which was issued to CDM Federal on July 20, 1994. A Preliminary Assessment (PA) was prepared by the NUS Corporation Field Investigation Team (NUS/FIT) in September 1988. On the basis of the information provided in the PA report, the St. Johnsbury Dump Site Inspection was initiated. A Site Inspection (SI) report was prepared by NUS/FIT in February 1990. Updated information encountered during the SIP process is included in this report. Relevant text from the SI report is presented in this report in a smaller font.

Background information used in the generation of this report was obtained through file searches conducted at the Vermont Agency of Natural Resources (VTANR), Department of Environmental Conservation (DEC), telephone interviews with town officials, conversations with persons knowledgeable of the St. Johnsbury Dump property, and conversations with other federal, state, and local agencies. Additional information was collected during the CDM Federal onsite reconnaissance on October 12, 1994, and environmental sampling on December 7, 1994.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations, such as those under the Resource Conservation and Recovery Act (RCRA), or other federal, state, or local regulations. SIPs are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

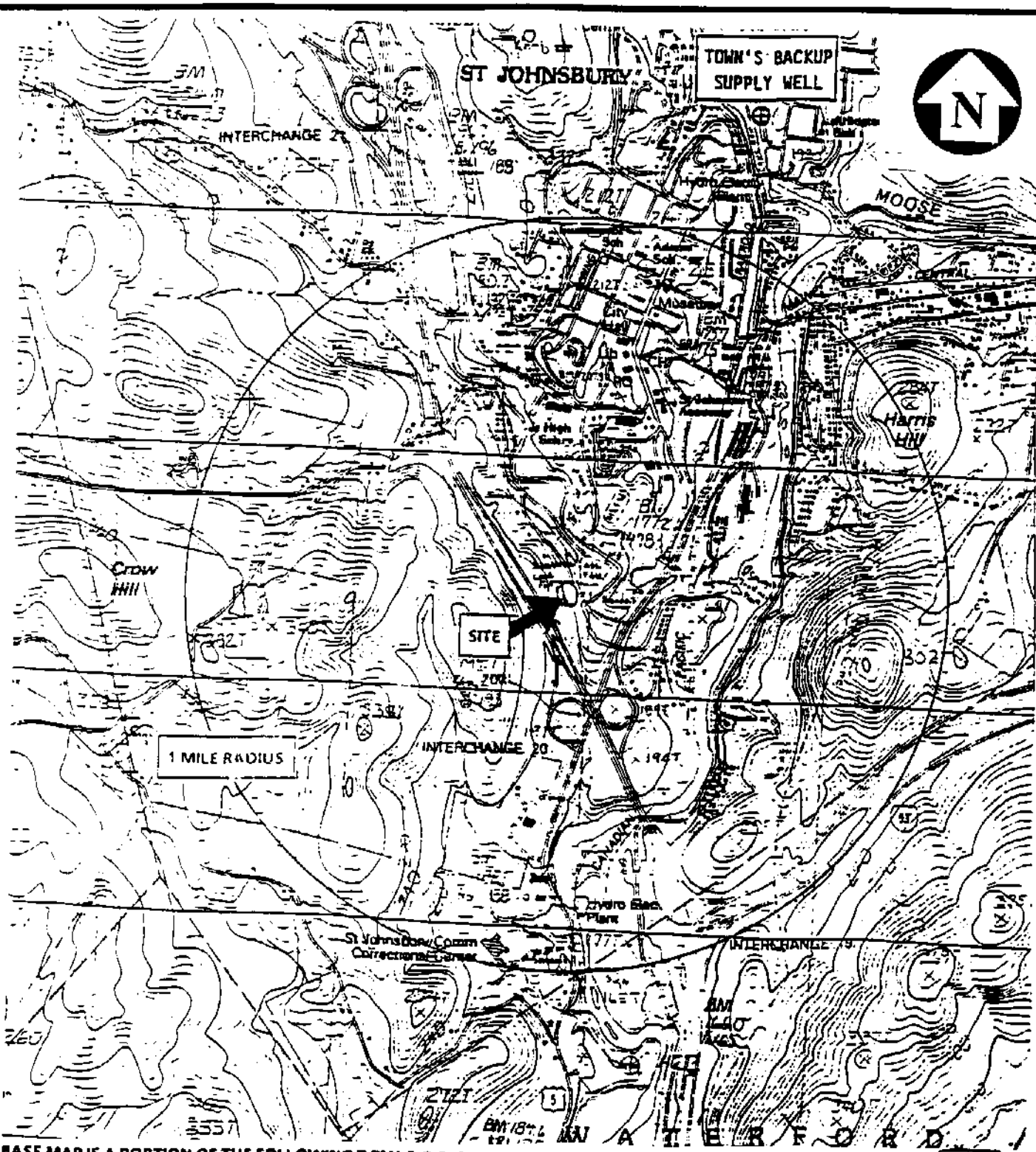
The St. Johnsbury Dump occupies approximately 4 acres in the municipality of St. Johnsbury, Caledonia County, Vermont. Currently closed, the dump is located directly adjacent to the Rapid Rubbish Removal transfer station at the end of High Street (geographic coordinates 44° 24' 36" N latitude; 72° 01' 35" W longitude). Other than the transfer station, there are no other active businesses on High Street [5]. The dump is bounded by the Sleepers River to the east, U.S. Route 5 and Interstate 91 to the south and west, and the Rapid Rubbish Removal transfer station to the north [5,11]. There are no buildings or paved areas on the property [5]. The dump is south of the former Fairbanks Morse Foundry property, an athletic field for the St. Johnsbury Academy, and a railroad line for the Lamoille Valley Railroad (see Figure 1; Location Map and Figure 2; Site Sketch) [5,11,18].

The dump accepted paint sludges, water soluble coolants, and electroplating sludge from a local industrial manufacturer, and household refuse from local residents. The dump is assumed to be unlined, "based on age and statewide general practice" [11]. There are no known monitoring wells on the property [5,11].

Dumping at the St. Johnsbury Dump is documented to have started prior to 1943 at a former "burning dump" located at the south end of High Street. The dump was expanded southward at least twice, once in 1963 and again in 1970. Cover and berm material for expanded portions of the dump are documented to have come from the former burning dump area of the St. Johnsbury Dump. The expanded portions of the dump were closed, covered with approximately 2 feet of soil, and seeded in 1975. Remnants of the former burning dump area are currently uncovered and exposed [5,8,11].

East of the former burning dump area is the Rapid Rubbish Removal transfer station. Leveling and grading operations in the southern portion of the transfer station have exposed a portion of the St. Johnsbury Dump. However, according to a partial property owner, and proprietor of Rapid Rubbish Removal, Inc., exposed refuse is subsequently covered with sand and gravel excavated from an onsite sand bank [5,11].

During an onsite reconnaissance of the St. Johnsbury Dump on October 12, 1994, CDM Federal observed refuse along a rip-rap-lined surface water drainage ditch that channels stormwater from a culvert beneath Interstate 91, through the dump, and into the Sleepers River [5,8]. The deeper pools in the Sleepers River, just north of the U.S. Route 5 overpass, are local fisheries [9]. The transfer station and residents on High Street are supplied with water from the St. Johnsbury municipal water supply [5].



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLE(S):

ST. JOHNSBURY, VERMONT, PROVISIONAL EDITION 1983 (7.5 X 15 MINUTE SERIES).

LOCATION MAP
ST. JOHNSBURY DUMP
ST. JOHNSBURY, VERMONT

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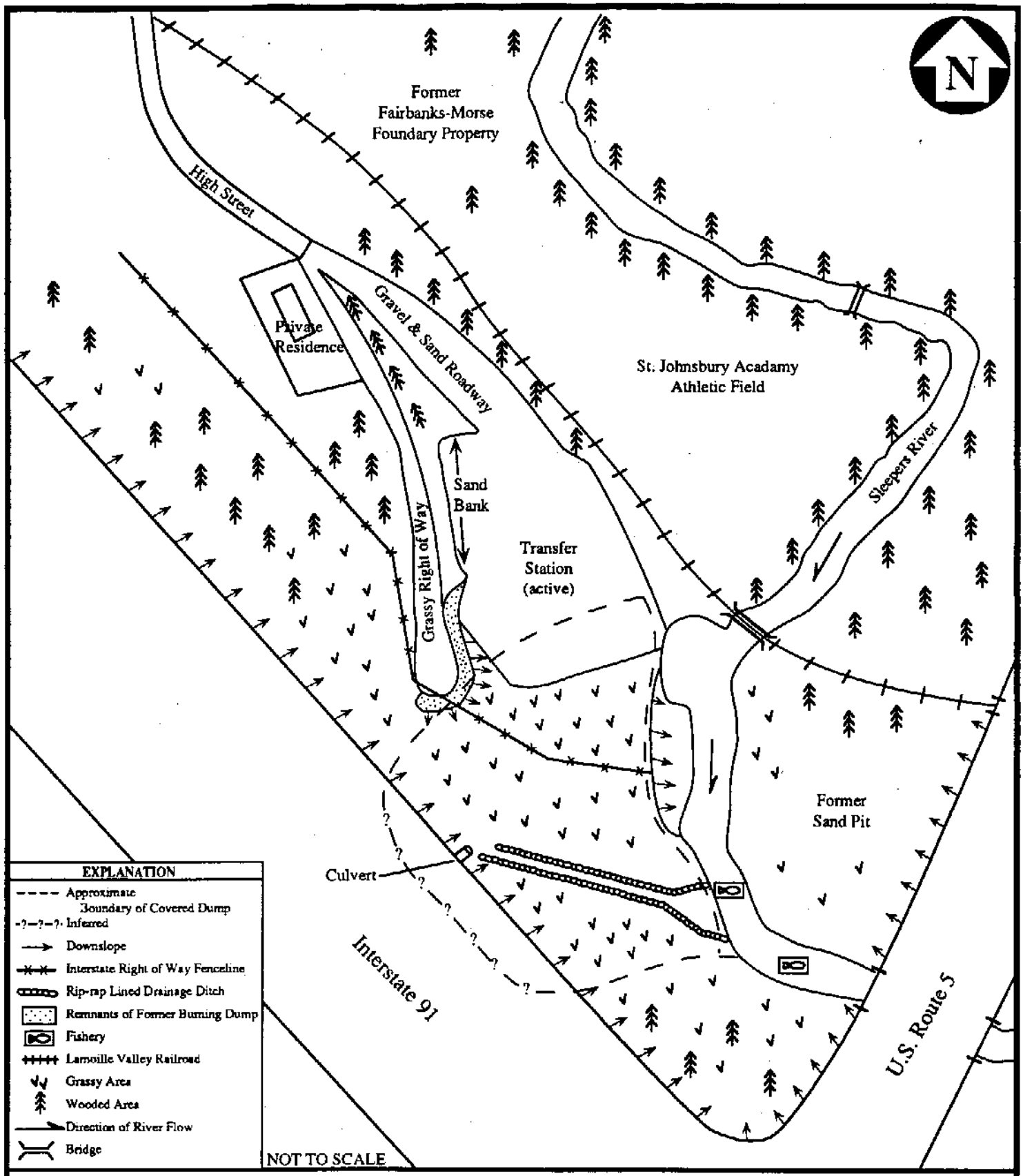
Figure 1



SITE SKETCH
ST. JOHNSBURY DUMP
ST. JOHNSBURY, VERMONT

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Figure 2

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

Vermont Agency of Environmental Conservation (VT AEC) aerial photographs indicate the dump was in use prior to 1943 [8,11].

> Landfill property, in addition to that already being used, was leased to the Town of St. Johnsbury in 1963 from Mr. Morton Lyster and the Fairbanks foundation for the purpose of maintaining and operating a sanitary landfill or "landfill dump" for public use. At a later time (year unknown) the State of Vermont also acquired ownership of portions of the Fairbanks Foundation land for the purpose of the construction of Interstate 91. As construction of the highway was not scheduled to begin until the mid 1970s, this land was leased to the Town of St. Johnsbury from 1970-1975 and was used for an extension of the original landfill as space had become very limited. The St. Johnsbury Dump operated as the town's municipal landfill from at least 1962 to 1975, accepting household refuse from the residents of St. Johnsbury until its closing in mid-1975. Aerial photographs depict the dump as being well established in 1962, suggesting the possibility of an earlier beginning. Information concerning when the landfill specifically began accepting wastes was not available to NUS/FIT from state or town records. A 24 inch thick layer of final cover material and seeding were expected to be laid down over the entire dump area after the final lift was completed [11].

Information from NUS/FIT activities and the CDM Federal site reconnaissance indicate the dump cover material is "local" soil with no indication of a liner or onsite monitoring wells. The local soil is documented to include the majority of the burning dump that was located directly northeast of the St. Johnsbury Dump [8,11].

> After the landfill was closed, the land parcel leased to the Town of St. Johnsbury reverted to the State Highway Department and the construction of Interstate 91 began [11].

Table 1 presents identified structures or areas on the St. Johnsbury Dump property that are potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

TABLE 1

Source Evaluation for
St. Johnsbury Dump

Potential Source Area	Containment Factors	Spatial Location
Landfill	Unlined, partially covered with 2 feet of local soil	4 acre parcel bounded by Interstate 91, High Street, Sleepers River, and U.S. Route 5 in St. Johnsbury, Vermont.

[5,8,11]

From the early 1800s to 1967, predecessors of Colt Industries/Fairbanks Weighing Division occupied a manufacturing facility approximately 0.25 mile north of the St. Johnsbury Dump on the banks of the Sleepers River. The facility manufactured platform scales. Processes included casting, electroplating, acid etching and painting. Metals plated in the electroplating process included zinc, cadmium, copper, and lead. Prior to May 1976, all wastes generated by the Fairbanks Weighing Division of Colt Industries were transported to the St. Johnsbury Dump [11].

Table 2 summarizes the types of potentially hazardous substances that have been disposed of on the property.

TABLE 2

Hazardous Waste Quantity for St. Johnsbury Dump

Waste Type	Estimate Waste Quantity Generated Per Year	Years of Disposal	Estimate Total Waste Quantity Disposed
Paint Sludges	12,600 kilograms (kg)	1967 to 1975	113,400 kg
Water Soluble Coolants	11,000 kg	1967 to 1975	99,000 kg
Electroplating Sludges	14,700 kg	1975	14,700 kg
			Grand Total = 227,100 kg

[11]

Prior to the closing of the St. Johnsbury Dump, VT AEC inspected the area and collected two soil samples. These samples represented material from the berm constructed along the Sleepers River and the daily cover material. It is unknown if these samples were analyzed; analytical results were not found during the file review. After the inspection, the VT AEC recommended that monitoring wells be installed for the purpose of detecting any leachate seeps adjacent to the river. The VT AEC could not verify if these were installed. Such wells were not observed during the onsite reconnaissance. Currently, the landfill property is in part owned by Mr. Richard Gorman, owner/operator of Rapid Rubbish Removal, Inc., and by the Vermont Highway Department. Mr. Gorman purchased 7.2 acres of land from Colt Industries in December 1986. Of the 7.2 acres, approximately one acre is occupied by a transfer station and two acres are occupied by the former St. Johnsbury Dump. The remaining acreage presumably lies north of the facility, adjacent to the access road for the transfer station. Mr. Gorman's property is separated from the State Highway Department property by a barbed wire fence trending parallel to the slope of the covered landfill. Information was not found identifying the exact acreage owned by the State Highway Department [11].

The CERCLA Information System (CERCLIS) discovery date for St. Johnsbury Dump was June 29, 1988 [16]. NUS/FIT completed a Preliminary Assessment of the St. Johnsbury Dump in September 1988. The Preliminary Assessment identified the groundwater pathway as the primary pathway of

concern and recommended that a SI of be performed. NUS/FIT completed an SI of the St. Johnsbury Dump, including sampling of surface soil and groundwater, in February 1990 [11].

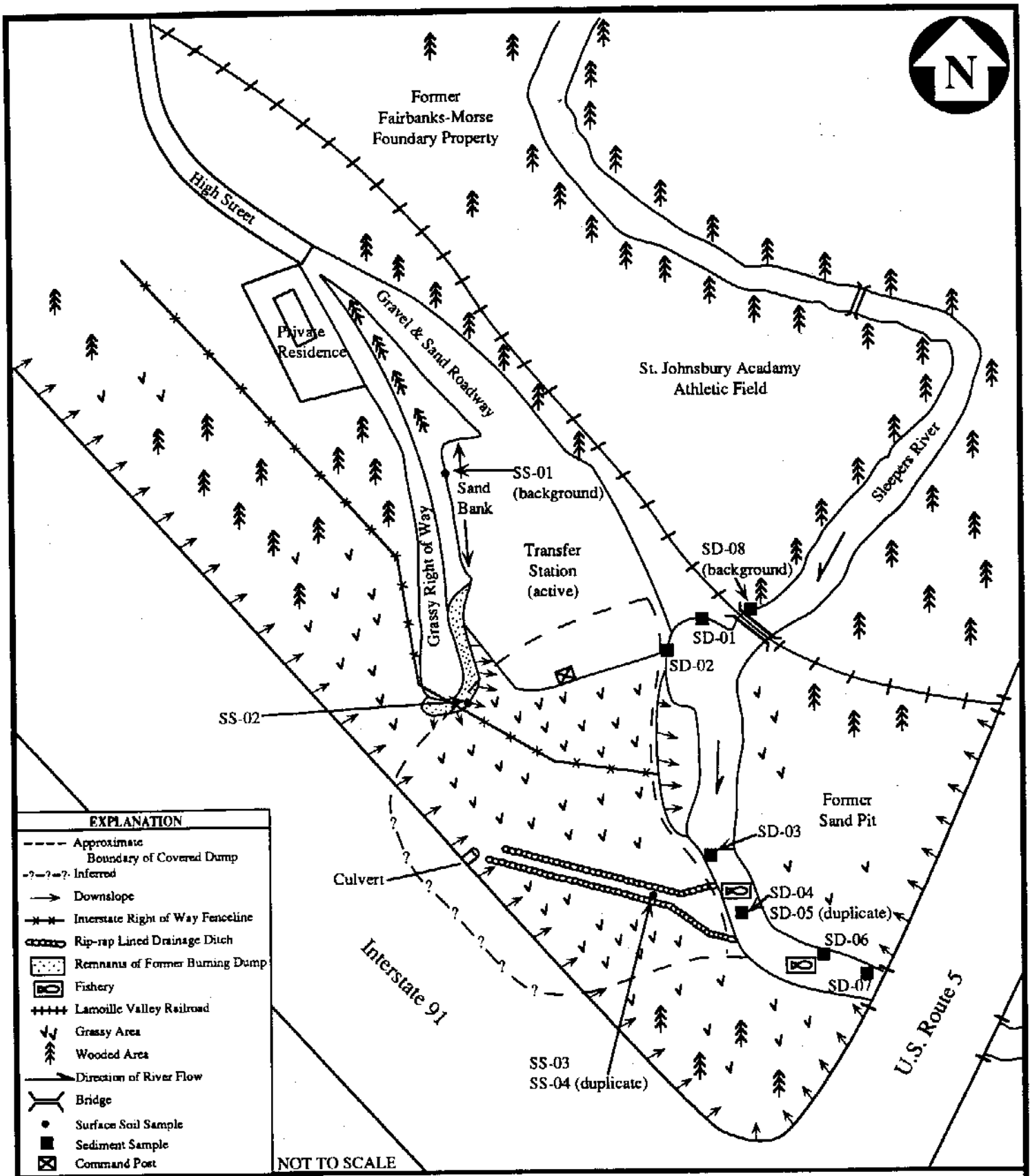
On October 12, 1994, CDM Federal conducted an onsite reconnaissance of the St. Johnsbury Dump. No wells were observed on the property during the reconnaissance. Exposed refuse was observed by CDM Federal along a rip-rap-lined surface water drainage ditch that channels stormwater from a culvert beneath Interstate 91 through the southern portion of the dump and into Sleepers River. A rust-orange, slimy algal growth was observed to encrust the gravel along the west bank of the Sleepers River, within the inferred probable point of entry (PPE) of groundwater discharging from the dump to the river. This growth was measured up to 2 inches thick on the gravel along the riverbank [5].

On December 7, 1994, CDM Federal field personnel collected four surface soil samples and eight sediment samples from the St. Johnsbury Dump and the adjacent Sleepers River. Samples were collected in accordance with the Task Work Plan, dated December 1, 1994 and approved by EPA. All samples were submitted for full Target Compound List (TCL) and Target Analyte List (TAL) through the EPA Contract Laboratory Program (CLP) Routine Analytical Services (RAS). All analytical results were reviewed according to EPA Tier II data validation protocols [12,13]. Data quality objectives established for this event were met. The Waste/Source Sampling and Surface Water Pathway sections of this report discuss the sampling event and the sampling results in more detail.

The property is not listed in the RCRA Information System [17]. The CERCLA Information System lists one site, Fairbanks Morse Foundry (VTD118078989), within 1 mile of the St. Johnsbury Dump [16].

WASTE/SOURCE SAMPLING

NUS/FIT completed a SI of the St. Johnsbury Dump in February 1990. NUS/FIT collected seven surface soil samples during the SI (see Figure 3: Site Sketch with Previous Sampling Locations). The soil samples were analyzed under EPA's CLP for volatile organic compounds (VOCS), semivolatile organic compounds (SVOCS), and inorganic elements. Polynuclear aromatic hydrocarbons (PAH), phthalates, pesticides, and inorganic elements were detected in soil samples collected from source areas onsite [11].



SIP SAMPLING LOCATIONS
ST. JOHNSBURY DUMP
ST. JOHNSBURY, VERMONT

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Figure 3

Tables 3 and 4 summarize the samples and results collected by NUS/FIT in November 1988.

TABLE 3

Sample Summary: St. Johnsbury Dump
Samples Collected by NUS/FIT on November 8-10, 1988

Sample Location No.	Traffic Report No.	Date Time	Remarks	Sample Source
MATRIX: Soil				
SS-01	AM911 MAK780	11/9/88 0956	Grab	Shallow sample from northern base of landfill toe along bank of eastern perimeter
SS-02	AM912 MAK781	11/9/88 1019	Grab	Shallow sample from base of landfill toe beneath exposed pipe south of SS-01
SS-03	AM913 MAK782	11/9/88 1040	Grab	Shallow sample from gullied area above slope toe west of SS-02
SS-04	AM914 MAK783	11/9/88 1100	Grab	Shallow sample from gullied area (near exposed drum) above slope toe north of SS-03
SS-05	AM915 MAK784	11/9/88 1115	Grab	Shallow sample from area of stained soil on crest of landfill slope, north of SS-04
SS-05D	AM916 MAK785	11/9/88 1120	Duplicate of SS-05	Same as SS-05
SS-06	AM917 MAK786	11/9/88 1135	Grab	Shallow sample from northeast corner of the dump by the top of the slope toe
SS-07	AM918 MAK787	11/10/88 1725	Grab	Offsite, in wooded area northwest of SS-06; background.
SS-08	AM919	11/8/88 1600	Trip Blank	Baked potting soil

[11]

Table 4 presents a summary of compounds and analytes detected in the analyses of source samples collected by NUS/FIT. For each sampling location, a compound or analyte is listed if it was detected at least three times greater than the reference sample concentration. The background sample (SS-07) concentrations are established as the reference concentrations. Compounds or analytes that occur at a concentration at least three times greater than the reference concentration are designated by their approximate relative value above the reference concentration. If the analyte or compound is not detected in the reference sample, the reference sample quantitation limit (SQL) (for organic analyses) or sample detection limit (SDL) (for inorganic analyses) is used as a reference value. Accordingly, compounds or analytes are listed by their approximate concentration above the SQL or SDL only if they occur at a value equal to or greater than the reference sample's SQL or SDL.

TABLE 4

Summary of Analytical Results
Source Sample Analysis for St. Johnsbury Dump
Samples Collected by NUS/FIT
on November 8-10, 1988

Sample Location No.	Compound/Element	Concentration		Reference Concentration		Comment
SS-01	Benzo(a)anthracene	430	ppb	420	U ppb	1.0 x SQL
	Barium	628	mg/kg	86	mg/kg	7.30 x REF
	Copper	503	J mg/kg	21.3	mg/kg	23.6 x REF
	Iron	64,100	J mg/kg	17,100	mg/kg	3.75 x REF
	Lead	1,580	J mg/kg	70.4	mg/kg	22.4 x REF
	Manganese	1,740	mg/kg	505	mg/kg	3.45 x REF
	Silver	85.0	mg/kg	25.7	mg/kg	3.31 x REF
	Zinc	2,410	J mg/kg	76.9	mg/kg	31.3 x REF
SS-02	Barium	1350	mg/kg	86	mg/kg	16 x REF
	Cadmium	16.9	J mg/kg	4.7	J mg/kg	3.6 x REF
	Iron	91,500	mg/kg	17,000	mg/kg	5.35 x REF
SS-03	Copper	74.9	mg/kg	21.3	mg/kg	3.52 x REF
SS-04	Phenanthene	1,300	ppb	80	J ppb	16 x REF
	Fluoranthene	2,300	ppb	200	J ppb	11 x REF
	Pyrene	2,300	ppb	200	J ppb	11 x REF
	Benzo(a)anthracene	1,400	ppb	150	J ppb	9.3 x REF
	Benzo(b)fluoranthene	1,200	ppb	440	U ppb	2.7 x SQL
	Benzo(k)fluoranthene	920	ppb	440	U ppb	2.1 x SQL
	Benzo(a)pyrene	1,300	ppb	440	U ppb	3.0 x SQL
	Indeno(1,2,3-cd)pyrene	1,100	ppb	440	U ppb	2.5 x SQL
	Benzo(g,h,i)perylene	1,000	ppb	440	U ppb	2.3 x SQL
	Endosulfan sulfate	87	ppb	40	U ppb	2.2 x SQL
	Copper	392	J mg/kg	21.3	mg/kg	18.4 x REF
	Iron	53,100	J mg/kg	17,100	mg/kg	3.11 x REF
	Zinc	601	J mg/kg	76.9	J mg/kg	7.82 x REF
SS-05	Mercury	5.1	J mg/kg	1.0	J mg/kg	5.1 x REF

REF = Reference Concentration
SQL = Sample Quantitation limit
U = Indicates the sample was analyzed but not detected and reports the detection value
ppb = Parts per billion = μg/kg (micrograms per kilogram)
mg/kg = Milligrams per kilogram = ppm (parts per million)

[11]

In December 1994, CDM Federal collected four surface soil samples from the St. Johnsbury Dump. The samples were analyzed under EPA's CLP program for the full TCL and TAL via RAS. The sampling included three grab surface soil samples from potential source areas and one grab background sample at the St. Johnsbury Dump. All samples from potential source areas were collected from 2 to 6 inches below ground surface (bgs). The background sample was collected from an exposed sand bank northwest of the onsite transfer station. This background location was selected because the soil at this location was most similar to that of the other samples [5]. Figure 4 illustrates the approximate locations of the samples. Analytical results were rejected for several analytes in SS-02 during the data validation process because of poor reproductivity between analytical column quantitated results [12]. Table 5 and Table 6 summarize the samples and results of CDM Federal's source sampling event.

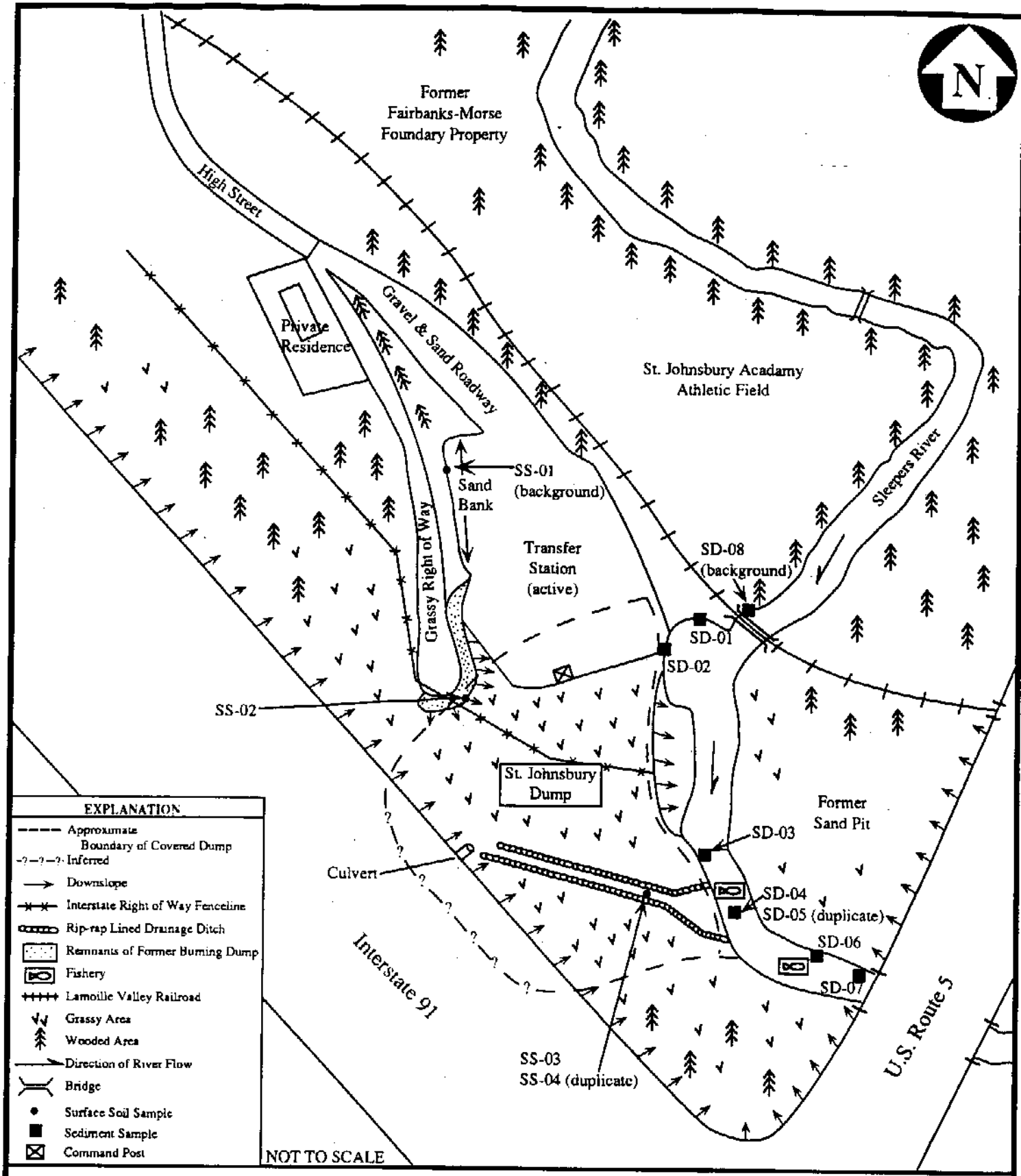
TABLE 5

Soil Sample Summary: St. Johnsbury Dump
Samples Collected by CDM Federal on December 7, 1994

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
SS-01	AHZ75 (O) MAFX75 (I)	1230	Grab	Sandbank area; background
SS-02	AHZ76 (O) MAFX76 (I)	1300	Grab	Remains of the former burning dump
SS-03	AHZ77 (O) MAFX77 (I)	1430	Grab	Rip-rap-lined drainage ditch directly upgradient from the heavily bouldered area, approximately 1/3 down the steepest portion of the landfill/dump slope
SS-04	AHZ78 (O) MAFX78 (I)	1430	Grab	Duplicate of SS-03 for QC

O = RAS organic sample analysis
I = RAS inorganic sample analysis
[5]

For each sampling location, a compound or analyte is listed on Table 6 if it was detected at least three times greater than the reference sample concentration. The background sample (SS-01) concentrations are established as the reference concentrations. Compounds or analytes that occur at a concentration at least three times greater than the reference concentration are designated by their approximate relative value above the reference concentration. If the analyte or compound is not detected in the reference sample, the reference SQL (for organic analyses) or SDL (for inorganic analyses) is used as a reference value. Accordingly, compounds or analytes are listed by their approximate concentration above the SQL or SDL only if they occur at a value equal to or greater than the reference sample's SQL or SDL.



SITE SKETCH WITH SIP SAMPLING LOCATIONS
ST. JOHNSBURY DUMP
ST. JOHNSBURY, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
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Figure 4

TABLE 6

Summary of Analytical Results
Surface Soil Sample Analysis for
St. Johnsbury Dump
Samples Collected by CDM Federal on December 7, 1994

Sample Location No.	Compound/Element	Concentration	Reference Concentration	Comments
SS-02	Aroclor-1254	430 J µg/kg	41 U µg/kg	10 x SQL
	Endrin	10 J µg/kg	4.1 U µg/kg	2.4 x SQL
	Antimony	3.9 J mg/kg	2.9 UJ mg/kg	1.3 x SDL
	Arsenic	5.4 mg/kg	1.3 J mg/kg	4.2 x REF
	Barium	124 mg/kg	31.1 mg/kg	3.99 x REF
	Cadmium	3.5 J mg/kg	0.9 J mg/kg	3.6 x REF
	Calcium	12,100 mg/kg	2,520 mg/kg	4.80 x REF
	Copper	542 mg/kg	16.9 mg/kg	32.1 x REF
	Lead	255 mg/kg	7.7 mg/kg	33 x REF
	Zinc	260 mg/kg	36.0 mg/kg	7.22 x REF
SS-03	Arsenic	4.2 mg/kg	1.3 J mg/kg	3.2 x REF
	Calcium	35,000 mg/kg	2,520 mg/kg	13.9 x REF
SS-04	Calcium	26,300 mg/kg	2,520 mg/kg	10.4 x REF

J = Quantitation is estimated due to limitations identified during quality central review.
µg/kg = Micrograms per kilogram = ppb (parts per billion)
mg/kg = Milligrams per kilogram = ppm (parts per million)
REF = Reference Concentration
SDL = Sample detection limit
SQL = Sample quantitation limit
U = Not detected
UJ = The compound was not detected. The compound quantitation limit is an estimated value.
note: The precision of entries in the comments column are governed by the rules of significant digits.
[12,13]

The complete analytical results of CDM Federal source sampling activities, including quantitation and detection limits, are presented in Attachments A and B. Sample results

in the analytical tables are considered approximate because of limitations identified during the CLP data validation. In addition, organic sample results reported at concentrations below quantitation limits, and confirmed by mass spectrometry, are also qualified by a "J" and are considered approximate.

CDM Federal's analytical results indicate the presence of contaminants in surface soils at the St. Johnsbury Dump including PAHs, polychlorinated biphenyls (PCBs), and inorganics. Analytical results were rejected for several pesticides in SS-02 during the data validation process because of poor reproductivity between analytical column quantitated results [11,12,13].

Background information indicates that the Fairbanks-Morse Foundry produced weighing scales and used the St. Johnsbury dump as a disposal area for paint-sludges, water soluble coolants, and electroplating sludges [11]. Arsenic and antimony are used as trace elements in alloys to impart strength and color. Barium and calcium are alkaline earth metals which are used in metallurgy as deoxidizers of copper and steel and to harden lead for bearings. Lead has been used as a pigment for paint, and a metal for beaings and alloys. Zinc is used in metalurgy to inhibit corrosion and to improve castings. The presence of these metals in the dump may be attributable to the foundry waste disposed by the Fairbanks-Morse Foundry into the St. Johnsbury dump. Endrin is an insecticide which is no longer used in the United States. Attribution of this insecticide is unknown. Aroclor-1254 is a polychlorinated biphenyl (PCB) containing approximately 54% chlorine. PCB's have been used as hydraulic fluids, wax extenders, lubricants, cutting oils, and in heat transfer systems [23].

Once operation of the dump was assumed by the town, household refuse was burned [11]. PAHs are possible or probable human carcinogens which are products of incomplete combustion [10]. Cover and berm materials for expanded portions of the dump are documented to have come from the burning dump area and are likely to be the source of the PAHs detected in soil samples [5,8,11].

GROUNDWATER PATHWAY

The bedrock underlying the property is composed of two formations: the Waits River Formation and the Gile Mountain Formation. The Waits River Formation is a rock unit composed of calcareous granulites, schists, and calc-silicates interbedded with quartz mica schist and micaceous quartzite. The Gile Mountain Formation is composed of light and dark grey schists with a greater proportion of quartz [11]. Bedrock is exposed along the western bank of the Sleepers River [5].

Surficial soils in the St. Johnsbury region are glaciolacustrine and glaciofluvial in origin. Soils in the immediate area of the St. Johnsbury Dump are alluvial. To the north and south, silty clays are prevalent. To the northeast and east are lake sands and a north-south treading esker. To the west, kame terraces are present [11].

clays are prevalent. To the northeast and east are lake sands and a north-south treading esker. To the west, kame terraces are present [11].

The direction of groundwater flow in the overburden in the vicinity of the St. Johnsbury Dump is inferred to mimic area topography. Groundwater studies conducted at the former Fairbanks Morse Foundry (approximately 0.25 mile north of the dump) indicate that groundwater flow is either parallel to the Sleepers River or towards it in an easterly direction. Depth to groundwater is approximately 6 feet below the ground surface at the dump [11]. The state of Vermont has not established a monitoring well network to monitor groundwater quality [19].

The only municipal groundwater source identified within 4 miles of the property is the back-up well for the town of St. Johnsbury. There is a wellhead protection area for this well [20]. This well, located approximately 1.3 mile north, is maintained as a backup source to Stiles Pond. The backup well has a potential pumping rate of 1.5 million gallons per day [7]. In an emergency, the backup well could potentially serve the whole St. Johnsbury municipal water system (3,000 connections/8,160 people) [7,11]. Stiles Pond is the primary municipal water supply for St. Johnsbury and is located 4 miles east of the dump at a higher elevation in Waterford, Vermont [11]. Table 7 presents the public groundwater supply sources within 4 miles of the St. Johnsbury Dump.

TABLE 7

Public Groundwater Supply Sources Within 4 Miles of St. Johnsbury Dump

Distance/ Direction from Property	Source Name	Location of Source (Town)	Estimated Population Served	Source Type
1.3 miles/North	St. Johnsbury Emergency Well	St. Johnsbury	8,160	Overburden

[7,11]

Based on U.S. Census Bureau data, it is estimated that 363 private water supply wells are located within 4 miles of the St. Johnsbury Dump, serving an estimated 986 people [6]. The nearest private well is within 0.25 mile, however, the exact location is unknown [6]. Table 8 lists the estimated drinking water populations served by groundwater sources within 4 miles of the St. Johnsbury Dump.

TABLE 8

Estimated Drinking Water Populations Served by Groundwater Sources Within 4 Miles of St. Johnsbury Dump

Radial Distance from St. Johnsbury Dump (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources within the Ring
0.00 - 0.25	3	0	3
> 0.25 - 0.50	8	0	8
> 0.50 - 1.00	44	0	44
> 1.00 - 2.00	182	8,160	8,342
> 2.00 - 3.00	311	0	311
> 3.00 - 4.00	438	0	438
TOTAL	986	8,160	9,146

[1,6,7,11]

On November 9 and 10, 1988, NUS/FIT collected groundwater samples along the eastern boundary of the dump, adjacent to the Sleepers River. NUS/FIT used a well point sampler and peristaltic pump to collect groundwater from a depth of approximately 6 feet below the ground surface [11]. CDM Federal did not conduct any groundwater sampling during this SIP. A summary of the groundwater samples collected by NUS/FIT is presented in Table 9.

TABLE 9

Groundwater Sample Summary: St. Johnsbury Dump
Samples Collected by NUS/FIT, November 8-10, 1988

Sample Location No.	Traffic Report No.	Remarks	Sample Source
GW-01	AM920, MAK788	Grab, Background	At toe of dump on eastern boundary, adjacent to river
GW-03	AM921, MAK789	Grab	At toe of dump on eastern boundary, adjacent to river, north of GW-01
GW-03R	AM922, MAK790	Replicate of GW-03	Same as GW-03
GW-07	AM923, MAK791	Equipment Blank	Deionized water

[11]

Table 10 presents a summary of compounds and analytes detected in the analyses of groundwater samples collected by NUS/FIT. For each sampling location, a compound or analyte is listed if it was detected at least three times greater than the reference sample concentration. The background sample (GW-01) concentrations are established as the reference concentrations. Compounds or analytes that occur at a concentration at least three times greater than the reference concentration are designated by their approximate relative value above the reference concentration. If the analyte or compound is not detected in the reference sample, the reference sample quantitation limit (SQL) (for organic analyses) or sample detection limit (SDL) (for inorganic analyses) is used as a reference value. Accordingly, compounds or analytes are listed by their approximate concentration above the SQL or SDL only if they occur at a value equal to or greater than the reference sample's SQL or SDL.

TABLE 10

Summary of Analytical Results
Groundwater Samples for St. Johnsbury Dump
Samples Collected by NUS/FIT, November 9-10, 1988

Sample Location	Compound/Element	Sample Concentration (μg/l)	Reference Concentration (μg/l)	Comments
GW-03	Manganese	9,400	2,150	4.37 x REF
	Silver	449	104	4.32 x REF
GW-03R	Manganese	9,340	2,150	4.34 x REF
	Silver	448	104	4.31 x REF

GW-03R is a replicate of GW-03.
μg/l = micrograms per liter
REF = Reference Concentration

[11]

Reportedly, property conditions and inclement weather prevented NUS/FIT from collecting an ideal reference groundwater sample [11]. For comparison purposes, GW-1 is used as a reference sample. However, the location of GW-1 is still within the potential influence of the St. Johnsbury Dump. Concentrations of benzene (5 ppb) and cadmium (68.5 ppb) detected in sample GW-1 by NUS/FIT exceeded the EPA established maximum contaminant level (MCLs) [11]. Both NUS/FIT and CDM Federal detected elevated levels of cadmium in the source soil samples collected in November 1988 and December 1994 [11,12,13].

Background information indicates that the Fairbanks-Morse Foundry used the St. Johnsbury Dump as a disposal area for electroplating sludges, paint sludges, and water soluble coolants. Silver is one of the raw products used in coating, chromating, phosphating, metal coloring, and immersion plating while manganese is one of constiuants of coating sludges [4]. Cadmium is a major component in electroplating and engraving [23].

SURFACE WATER PATHWAY

The probable point of entry (PPE) of surface water migrating from the property via overland flow, or groundwater to surface water discharge, to the Sleepers River is along the river frontage adjacent to the eastern boundary of the St. Johnsbury Dump. The Sleepers River flows southeast for approximately 0.5 mile where it empties into the Passumpsic River. The Passumpsic River flows south for approximately 8 miles before emptying into the Connecticut River, which flows south for 6.5 miles where it reaches the 15-mile downstream pathway (DSP)

at McIndoe Falls in Barnet, Vermont [11]. Table 11 lists water bodies that lie within the 15-mile DSP from St. Johnsbury Dump.

TABLE 11

Water Bodies Within the Surface Water Segment of St. Johnsbury Dump

Surface Water Body	Descriptor[a]	Length of Reach	Flow Characteristics (Cubic feet per second)	Length of Wetlands
Sleepers River	Small to moderate stream	2,500 feet	66.5	None
Passumpsic River	Moderate to large stream	8 miles	747	less than 1 mile
Connecticut River	Large stream to river	6.5 miles	4,730	None

[a] Minimal stream. Small to moderate stream. Moderate to large stream. Large stream to river. Very large river. Coastal tidal waters. Shallow ocean zone or Great Lake. Deep ocean zone or Great Lake. Three-mile mixing zone in quiet flowing river.

[11,18]

No municipal drinking water intakes are along the Sleepers, Passumpsic, or Connecticut Rivers within the 15-mile DSP [1,2,3,11]. All waters along the 15-mile DSP are Class B, suitable for recreation and a drinking water source [11,22]. The Sleepers River has been designated as a potential drinking water source by the VT ANR/DEC Water Quality Division, but is not currently in use [11]. The total frontage of wetlands within the 15-mile DSP is of less than 1 mile and occur along the Passumpsic River approximately 1.5 miles downstream from the dump [15]. There are no known endangered or threatened species within the 15-mile DSP [11].

Recreational activities for the Sleepers, Passumpsic, and Connecticut Rivers include boating, swimming, and recreational sport fishing. However, boating and swimming are limited in the Sleepers River due to low water levels during the summer months. Both the Sleepers and Passumpsic Rivers are cold water streams. Primary fish habitats found along the downstream pathway of the Sleepers River are for rainbow trout and brown trout. Fish habitats within these portions of the Sleepers River reportedly have been "negatively affected" by the construction of Interstate 91 and by industrial processes associated with the former Fairbanks Morse Foundry [11]. Fishing is known to occur in the pools of the Sleepers River between Interstate 91 and Route 5 [9]. Primary fish habitats found in the lower Passumpsic River include brown trout and the minnow family Cyprinidae. Fish habitats found within the DSP of the Connecticut River include brook, brown, and rainbow trout; large- and smallmouth bass; pike; pickerel; walleye; and bullhead [22].

CDM Federal collected eight sediment samples from the banks of the Sleepers River to determine if contaminants have migrated from the St. Johnsbury Dump to the river (see Figure 4). The sediment samples were collected from the Sleepers River along the southeastern boundary of the St. Johnsbury Dump. Samples were analyzed for full TAL/TCL contaminants via EPA's CLP. One sample, SD-08, was collected as a background sample to characterize sediment upstream of the dump. Sediment at SD-08 consisted of very fine grey sand. Sediment at locations SD-01, SD-02, and SD-03 consisted of fine grey sand. Sediment at SD-04/05 consisted of fine sand and gravel. Sediment at SD-06 consisted of fine to medium, grey sand. Sediment at SD-07 consisted of fine to medium, grey sand. A rust-orange, slimy algal growth observed to encrust the gravel in the area of SD-04/05 during the October 1994 site reconnaissance was not observed during the December 1994 sampling event. The Sleepers River was flowing at a significantly higher rate during the sampling event than during the site reconnaissance. Ripple marks were observed by CDM Federal in the sediments at SD-06 and SD-07 [5].

A summary of the sediment samples collected by CDM Federal is presented in Table 12.

TABLE 12

Sediment Sample Summary: St. Johnsbury Dump
Samples Collected by CDM Federal, December 7, 1994

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
SD-01	AHZ79 (O) MAFX79 (I)	1510	Grab	Sleepers River approximately 50 feet downstream of the railroad trestle
SD-02	AHZ80 (O) MAFX80 (I)	1500	Grab	Sleepers River approximately 150 feet downstream of the railroad trestle
SD-03	AHZ81 (O) MAFX81 (I)	1345	Grab	Sleepers River approximately 75 feet upstream of SD-04/05
SD-04	AHZ82 (O) MAFX82 (I)	1320	Grab	Sleepers River within the suspected groundwater to surface water discharge area
SD-05	AHZ83 (O) MAFX83 (I)	1320	Grab	Same as SD-04; Replicate for QC
SD-06	AHZ84 (O) MAFX84 (I)	1245	Grab	Sleepers River approximately 75 feet upstream of SD-07; fishery
SD-07	AHZ85 (O) MAFX85 (I)	1220	Grab	Sleepers River approximately 10 feet upstream of the easternmost abutment for the Route 5 overpass; fishery
SD-08	AHZ86 (O) MAFX86 (I)	1545	Grab	Sleepers River approximately 45 feet upstream of railroad trestle; background sample

O = RAS Organic Sample Analysis
I = RAS Inorganic Sample Analysis
[5]

Table 13 presents summaries of compounds and analytes detected in the analyses of sediment samples collected by CDM Federal. For each sampling location, a compound or analyte is listed if it was detected at least three times greater than the reference sample concentration. The background sample (SD-08) concentrations are established as the reference concentrations. Compounds or analytes that occur at a concentration at least three times greater than the reference concentration are designated by their approximate relative value above the reference concentration. If the analyte or compound is not detected in the reference sample, the reference SQL (for organic analyses) or SDL (for inorganic analyses) is used as a reference value. Accordingly, compounds or analytes are listed by their approximate concentration above the SQL or SDL only if they occur at a value equal to or greater than the reference sample's SQL or SDL.

TABLE 13

Summary of Analytical Results
Sediment Sample Analysis for St. Johnsbury Dump
Samples Collected by CDM Federal, December 7, 1994

Sample Location No.	Compound/Element	Concentration	Reference Concentration (Sample SD-08)	Comment
SD-01	Lead	173 J mg/kg	11.6 J mg/kg	14.9 x REF
SD-04	Calcium	78,500 J mg/kg	9430 J mg/kg	8.32 x REF
	Aroclor-1254	67 J µg/kg	46 U µg/kg	1.5 x SQL

J = Estimated Value
µg/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram
REF = Reference concentration
SQL = Sample quantitation limit
U = Undetected, SQL is listed.

[12,13]

The complete analytical results of the sediment sampling activities, including quantitation and detection limits, are presented in Attachments A and B. Sample results qualified with a "J" on the analytical tables are considered approximate because of limitations identified during the CLP data validation. In addition, organic sample results reported at concentrations below quantitation limits, and confirmed by mass spectrometry, are also qualified by a "J" and are considered approximate.

Analytical results were rejected for the pesticide gamma-chlordane in SD-04 during the data

validation process because of poor reproductivity between analytical column quantitated results [10]. All contaminants listed in Table 13 were also detected in the source samples collected by CDM Federal. The contaminants listed in Table 13 are associated with either electroplating or paint processes and their presence in samples collected from the Sleepers River are likely due to migration of contamination from the St. Johnsbury Dump to the river [4,14].

SOIL EXPOSURE PATHWAY

Surface soils in the St. Johnsbury region are generally glaciolacustrine, glaciofluvial and post glaciofluvial. Soils in the immediate area of the St. Johnsbury Dump are alluvial [11]. Soil sampling was conducted by NUS/FIT in November 1988 and CDM Federal in December 1994. Soil sampling results indicated elevated levels of PAHs, phthalates, PCBs, and inorganic elements. The Waste/Source Sampling section of this document details the sampling and results. Figures 3 and 4 illustrate the approximate sample locations for each event. Attachments A and B to this document contain the organic and inorganic results from the December 1994 CDM Federal sampling event.

Rapid Rubbish Removal, Inc., currently operates a transfer station on a portion of the St. Johnsbury Dump [5,11]. During posted operating hours, there are one to three workers at the transfer station. Residents of St. Johnsbury deposit rubbish and recyclables during operating hours [5].

The nearest residence is approximately 700 feet north of the dump [5,11]. An estimated 2,548 people live within a mile radius of the dump [6]. There are no documented terrestrial sensitive environments on the St. Johnsbury Dump property [11]. There are no day care/schools within 200 feet of areas of observed contamination [5,11].

Vehicular access is limited by an entrance gate to the transfer station at the southern end of High Street. Pedestrian access to the St. Johnsbury Dump is unrestricted [5,11].

AIR PATHWAY

The nearest resident to the St. Johnsbury Dump is approximately 700 feet north of the property [5,11]. An estimated 2,548 people live within 1 mile of the property and approximately 6,992 live within 4 miles of the property [6]. Table 14 summarizes the residential population within a 4 mile radius of the St. Johnsbury Dump.

TABLE 14

Estimated Population Within 4 Miles of St. Johnsbury Dump

Radial Distance From St. Johnsbury Dump (miles)	Estimated Population
0.00 - 0.25	192
> 0.25 - 0.50	623
> 0.50 - 1.00	1,733
> 1.00 - 2.00	1,656
> 2.00 - 3.00	1,530
> 3.00 - 4.00	1,258
TOTAL	6,992

[6]

One state designated threatened species habitat (ram's head lady's slipper), one endangered species habitat (sheathed sedge), and one state designated natural area (Northern white cedar swamp) are located within the 4-mile radius of the property [11].

During CDM Federal's reconnaissance and sampling event, total VOC concentrations were monitored with a MiniRAE photoionization detector (PID). No concentrations above background were detected. During both events, the PID recorded 0.0 ppm as a background reading [5]. Background research did not reveal any additional air sampling events.

SUMMARY

The St. Johnsbury Dump is located on approximately 4 acres of land south of High Street in St. Johnsbury, Caledonia County, Vermont. An estimated 6,992 people live within 4 miles of the St. Johnsbury Dump. An estimated 2,548 people live within a mile radius of the dump.

The dump accepted paint sludges, water soluble coolants, and electroplating sludge from a local industrial manufacturer, and household refuse from local residents from prior to 1943 to 1975. The dump is assumed to be unlined, "based on age and statewide general practice." No known monitoring wells are on the property. Upon closure in 1975, the dump was covered with approximately 2 feet of soil and seeded.

During the onsite reconnaissance of the St. Johnsbury Dump, CDM Federal Programs Corporation (CDM Federal) observed exposed refuse along the rip-rap-lined surface water drainage ditch that channels stormwater from Interstate 91 through the southern portion of the dump and in the Sleepers River. The deeper pools of the Sleepers River, just north of the U.S. Route 5 overpass, are local fisheries. The 15-mile downstream pathway includes the Sleepers, Passumpsic, and Connecticut rivers. Wetlands are located along the Passumpsic portion of the downstream pathway. There are no documented drinking water intakes along the 15-mile downstream pathway.

Currently, a portion of the St. Johnsbury Dump is occupied by the Rapid Rubbish Removal, Inc., transfer station. One to three workers at the transfer station accept refuse and recyclables from the residents of St. Johnsbury. Vehicular traffic is restricted by a locked gate when the transfer station is closed. There are no physical restrictions to pedestrian traffic. There are no day care/schools within 200 feet of areas of observed contamination.

NUS Corporation/Field Investigation Team (NUS/FIT) and CDM Federal conducted SI and SIP sampling events in November 1988 and December 1994, respectively. The NUS/FIT sampling event revealed elevated concentrations of polynuclear aromatic hydrocarbons (PAHs), phthalates, and inorganic elements in both the soil and groundwater. The CDM Federal sampling event revealed elevated concentrations of polychlorinated biphenols (PCBs), semivolatile organic compounds (SVOCs) and inorganic elements in onsite surface soil and in the sediment from the adjacent Sleepers River. The data from both field events reveal contaminants associated with electroplating and painting process wastes known to be disposed of in the dump.

The nearest private well is within 0.25 mile from the St. Johnsbury Dump. The nearest public well is the back-up well for the town of St. Johnsbury. This well is approximately 1.3 mile north and has a potential pumping rate of 1.5 million gallons per day. This back-up well could potentially serve the whole St. Johnsbury municipal water system with an estimated 8,160 people. There is a wellhead protection area for this well. Stiles pond is the primary municipal water supply for St. Johnsbury and is located 4 miles east of the St. Johnsbury Dump. An

estimated 9,146 people are served by groundwater sources with 4 miles of the St. Johnsbury Dump. The nearest residence is approximately 700 feet north of the dump.

There are no documented terrestrial sensitive environments on the St. Johnsbury Dump property. One state designated threatened species habitat (ram's head lady's slipper), one endangered species habitat (sheathed sedge), and one state designated natural area (Northern white cedar swamp) are located within 4 miles of the St. Johnsbury Dump.

REFERENCES

[1] Bernard, J. (CDM Federal). 1994. Record of Communication with the Town Clerk of Waterford, Vermont, RE: Municipal Wells in Waterford, Vermont. Fairbanks Morse Foundry, TDD No. 9401-64-CCX. September 1.

[2] Bernard, J. (CDM Federal). 1994. Record of Communication with the Town Clerk of Barnett, Vermont, RE: Municipal Water Supply for Barnett, Vermont. Fairbanks Morse Foundry, TDD No. 9401-64-CCX. September 7.

[3] Bernard, J. (CDM Federal). 1994. Record of Communication with B. Gibson (Monroe NH Town Garage), RE: Drinking Water Intakes on the Connecticut River for Monroe, New Hampshire. Fairbanks Morse Foundry, TDD No. 9401-64-CCX. September 8.

[4] Black and Veach. 1980. Industrial Wastes, Summary of EPA Development Documents, Monitoring and Compliance Information. Volume 1. pg. 49-54. June 30.

[5] CDM Federal (CDM Federal Programs Corporation). 1994. Field Logbook, St. Johnsbury Dump, TDD No. 9401-65-CXX. October.

[6] Frost R. (Frost Associates). 1994. CENTRACTS Report on Population, Households and Private Water Wells of Each Block Group for the St. Johnsbury Dump. September 3.

[7] Klitzke, M.H. (CDM Federal). 1994. Record of Communication with D. Clark (St. Johnsbury Town Manager), RE: Water Service and Number of Connections in St. Johnsbury, Vermont. St. Johnsbury Dump, TDD No. 9401-65-CXX. September 23.

[8] Klitzke, M.H. (CDM Federal). 1994. Memorandum to Site File, RE: History of Johnsbury Dump and "Burning Dump" Relationship. St. Johnsbury Dump, TDD No. 9401-65-CCX. October 25.

[9] Klitzke, M.H. (CDM Federal). 1994. Record of Communication with E. Palmer (VT ANR, Department of Fish and Wildlife), RE: Fishing along the Sleepers River. St. Johnsbury Dump, TDD No. 9401-65-CCX. October 26.

[10] Menzie, L.A., Potocki, B.B. and Santodonato, J. 1992. Exposure to Carcinogenic PAHs in the Environment. *Environmental Science & Technology*. 26(7): 1278-1284.

[11] NUS Corporation. 1990. Final Screening Site Inspection Report. St. Johnsbury Dump, St. Johnsbury, Vermont. February.

[12] Rigassio, A. (CDM Federal). 1994. Draft Data Validation Report to C. Clark (USEPA), RE: (RAS) Organics Results for St. Johnsbury Dump, St. Johnsbury, Vermont. Case 23023. SDG AHZ73. February 17.

[13] Rigassio, A. (CDM Federal). 1994. Draft Data Validation Report to C. Clark (USEPA), RE: (RAS) Metals and Cyanide Results for St. Johnsbury Dump, St. Johnsbury, Vermont. Case 23023. SDG MAFX75. March 3.

[14] Shineldecker, C.L. 1992. Handbook of Environmental Contaminants: A Guide for Site Assessment. Chelsea, Michigan: Lewis Publishers, Inc.

[15] U.S. Department of the Interior. 1977. Wetlands Inventory Map, St. Johnsbury, Vermont - New Hampshire. October.

[16] U.S. Environmental Protection Agency (USEPA). 1994. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). Printout dated October.

[17] USEPA. 1993. Resource Conservation and Recovery Information System (RCRIS). Printout dated November 22.

[18] U.S. Geological Survey (USGS). 1983. St. Johnsbury Quadrangle, Vermont. U.S. Geological Survey, 7.5′ x 15′ Series (Topographic). Provisional Edition.

[19] USGS. 1986. National Water Summary 1986 - Ground-Water Quality: Vermont Water Supply Paper 2325. p. 507.

[20] VT ANR/DEC. Water Quality Division. 1993. Public Community Water System Inventory. Printout Dated: November 17.

[21] VT ANR/DEC. 1994. Data files of Aquifer Protection Areas/Wellhead Protection Areas - Vermont Agency of Natural Resources/Department of Environmental Conservation. Reviewed in August.

[22] Vermont Fish & Wildlife Department. Vermont Guide to Fishing. Not Dated.

[23] Windholz, M (editor). 1983. The Merck Index. Rahway, New Jersey.

ATTACHMENT A

St. Johnsbury Dump

Organic Analytical Results and Sample Quantitation Limits
CDM Federal Programs Corporation

December 7, 1994

CASE NO: 23023
SDG NO: AHZ73

SITE: ST. JOHNSBURY DUMP ST. JOHNSBURY, VT
LABORATORY: AMER ANALYTICAL TECH SERV

EPA SAMPLE NUMBER:	AHZ75		AHZ76		AHZ77		AHZ78		AHZ79		AHZ80	
SAMPLE LOCATION:	SS-01		SS-02		SS-03		SS-04		SD-01		SD-02	
LABORATORY SAMPLE NUMBER:	956601		956604		956605		956606		956607		956608	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	12/08/94		12/08/94		12/08/94		12/08/94		12/08/94		12/08/94	
DATE ANALYZED:	12/11/94		12/11/94		12/11/94		12/11/94		12/11/94		12/11/94	
PERCENT SOLID:	81		86		72		73		75		78	
VOA												
Chloromethane	12	U	12	U	14	U	14	U	13	U	13	U
Bromomethane	12	U	12	U	14	U	14	U	13	U	13	U
Vinyl Chloride	12	U	12	U	14	U	14	U	13	U	13	U
Chloroethane	12	U	12	U	14	U	14	U	13	U	13	U
Methylene Chloride	12	U	12	U	14	U	14	U	13	U	13	U
Acetone	12	U	12	U	71	UJ	54	UJ	13	U	13	U
Carbon Disulfide	12	U	12	U	14	U	14	U	13	U	13	U
1,1-Dichloroethene	12	U	12	U	14	U	14	U	13	U	13	U
1,1-Dichloroethane	12	U	12	U	14	U	14	U	13	U	13	U
1,2-Dichloroethene (total)	12	U	12	U	14	U	14	U	13	U	13	U
Chloroform	12	U	12	U	14	U	14	U	13	U	13	U
1,2-Dichloroethane	12	U	12	U	14	U	14	U	13	U	13	U
2-Butanone	12	U	12	U	14	U	14	U	13	U	13	U
1,1,1-Trichloroethane	12	U	12	U	14	U	14	U	13	U	13	U
Carbon Tetrachloride	12	U	12	U	14	U	14	U	13	U	13	U
Bromodichloromethane	12	U	12	U	14	U	14	U	13	U	13	U
1,2-Dichloropropane	12	U	12	U	14	U	14	U	13	U	13	U
cis-1,3-Dichloropropene	12	U	12	U	14	U	14	U	13	U	13	U
Trichloroethene	12	U	12	U	14	U	14	U	13	U	13	U
Dibromochloromethane	12	U	12	U	14	U	14	U	13	U	13	U
1,1,2-Trichloroethane	12	U	12	U	14	U	14	U	13	U	13	U
Benzene	12	U	12	U	14	U	14	U	13	U	13	U
trans-1,3-Dichloropropene	12	U	12	U	14	U	14	U	13	U	13	U
Bromoform	12	U	12	U	14	U	14	U	13	U	13	U
4-Methyl-2-Pentanone	12	U	12	U	14	U	14	U	13	U	13	U
2-Hexanone	12	U	12	UJ	14	U	14	U	13	U	13	U
Tetrachloroethene	12	U	12	UJ	14	U	14	U	13	U	13	U
1,1,2,2-Tetrachloroethane	12	U	12	UJ	14	U	14	U	13	U	13	U
Toluene	12	U	12	UJ	14	U	14	U	13	U	13	U
Chlorobenzene	12	U	12	UJ	14	U	14	U	13	U	13	U
Ethylbenzene	12	U	12	UJ	14	U	14	U	13	U	13	U
Styrene	12	U	12	UJ	14	U	14	U	13	U	13	U
Xylene (total)	12	U	12	UJ	14	U	14	U	13	U	13	U

FILENAME: AHZ73.SDG DATE: 01/17/95 TIME: 15:29 CADRE 1.92

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

CASE NO: 23623
SDG NO: AHZ73

SITE: ST. JOHNSBURY DUMP ST. JOHNSBUR
LABORATORY: AMER ANALYTICAL TECH SERV

EPA SAMPLE NUMBER:	AHZ81		AHZ82		AHZ83		AHZ84		AHZ85		AHZ86	
SAMPLE LOCATION:	SD-03		SD-04		SD-05		SD-06		SD-07		SD-08	
LABORATORY SAMPLE NUMBER:	956609		956610		956611		956612		956613		956614	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	12/08/94		12/08/94		12/08/944		12/08/94		12/08/94		12/08/94	
DATE ANALYZED:	12/11/94		12/11/94		12/11/94		12/11/94		12/11/94		12/11/94	
PERCENT SOLID:	76		86		87		82		81		71	
VOA												
Chloromethane	13	U	12	U	11	U	12	U	12	U	14	U
Bromomethane	13	U	12	U	11	U	12	U	12	U	14	U
Vinyl Chloride	13	U	12	U	11	U	12	U	12	U	14	U
Chloroethane	13	U	12	U	11	U	12	U	12	U	14	U
Methylene Chloride	13	U	12	U	11	U	12	U	12	U	14	U
Acetone	13	U	14	UJ	11	U	12	U	12	U	14	U
Carbon Disulfide	13	U	12	U	11	U	12	U	12	U	14	U
1,1-Dichloroethene	13	U	12	U	11	U	12	U	12	U	14	U
1,1-Dichloroethane	13	U	12	U	11	U	12	U	12	U	14	U
1,2-Dichloroethene (total)	13	U	12	U	11	U	12	U	12	U	14	U
Chloroform	13	U	12	U	11	U	12	U	12	U	14	U
1,2-Dichloroethane	13	U	12	U	11	U	12	U	12	U	14	U
2-Butanone	13	U	12	U	11	U	12	U	12	U	14	U
1,1,1-Trichloroethane	13	U	12	U	11	U	12	U	12	U	14	U
Carbon Tetrachloride	13	U	12	U	11	U	12	U	12	U	14	U
Bromodichloromethane	13	U	12	U	11	U	12	U	12	U	14	U
1,2-Dichloropropane	13	U	12	U	11	U	12	U	12	U	14	U
cis-1,3-Dichloropropene	13	U	12	U	11	U	12	U	12	U	14	U
Trichloroethene	13	U	12	U	11	U	12	U	12	U	14	U
Dibromochloromethane	13	U	12	U	11	U	12	U	12	U	14	U
1,1,2-Trichloroethane	13	U	12	U	11	U	12	U	12	U	14	U
Benzene	13	U	12	U	11	U	12	U	12	U	14	U
trans-1,3-Dichloropropene	13	U	12	U	11	U	12	U	12	U	14	U
Bromoform	13	U	12	U	11	U	12	U	12	U	14	U
4-Methyl-2-Pentanone	13	U	12	U	11	U	12	U	12	U	14	U
2-Hexanone	13	U	12	U	11	U	12	U	12	U	14	U
Tetrachloroethene	13	U	12	U	11	U	12	U	12	U	14	U
1,1,2,2-Tetrachloroethane	13	U	12	U	11	U	12	U	12	U	14	U
Toluene	13	U	12	U	11	U	12	U	12	U	14	U
Chlorobenzene	13	U	12	U	11	U	12	U	12	U	14	U
Ethylbenzene	13	U	12	U	11	U	12	U	12	U	14	U
Styrene	13	U	12	U	11	U	12	U	12	U	14	U
Xylene (total)	13	U	12	U	11	U	12	U	12	U	14	U

FILENAME: AHZ73.SDG DATE: 01/17/95 TIME: 15:29 CADRE 1.92

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

CASE NO: 23023
SDG NO: AHZ73

SITE: ST. JOHNSBURY DUMP ST. JOHNSBURY, VT
LABORATORY: AMER ANALYTICAL TECH SERV

EPA SAMPLE NUMBER:	AHZ75		AHZ76		AHZ77		AHZ78		AHZ79		AHZ80	
SAMPLE LOCATION:	SS-01		SS-02		SS-03		SS-04		SD-01		SD-02	
LABORATORY SAMPLE NUMBER:	956601		956604		956605		956606		956607		956608	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	12/08/94		12/08/94		12/08/94		12/08/94		12/08/94		12/08/94	
DATE EXTRACTED:	12/09/94		12/09/94		12/09/94		12/09/94		12/09/94		12/09/94	
DATE ANALYZED:	12/20/94		12/20/94		12/20/94		12/20/94		12/21/94		12/21/94	
PERCENT SOLID:	81		86		72		73		75		78	
BNA												
Phenol	410	U	380	U	460	U	450	U	440	U	420	U
bis(2-Chloroethyl) ether	410	U	380	U	460	U	450	U	440	U	420	U
2-Chlorophenol	410	U	380	U	460	U	450	U	440	U	420	U
1,3-Dichlorobenzene	410	U	380	U	460	U	450	U	440	U	420	U
1,4-Dichlorobenzene	410	U	380	U	460	U	450	U	440	U	420	U
1,2-Dichlorobenzene	410	U	380	U	460	U	450	U	440	U	420	U
2-Methylphenol	410	U	380	U	460	U	450	U	440	U	420	U
2,2'-oxybis(1-Chloropropane)	410	U	380	U	460	U	450	U	440	U	420	U
4-Methylphenol	410	U	380	U	460	U	450	U	440	U	420	U
N-Nitroso-di-n-propylamine	410	U	380	U	460	U	450	U	440	U	420	U
Hexachloroethane	410	U	380	U	460	U	450	U	440	U	420	U
Nitrobenzene	410	U	380	U	460	U	450	U	440	U	420	U
Isophorone	410	U	380	U	460	U	450	U	440	U	420	U
2-Nitrophenol	410	U	380	U	460	U	450	U	440	U	420	U
2,4-Dimethylphenol	410	U	380	U	460	U	450	U	440	U	420	U
bis(2-Chloroethoxy) methane	410	U	380	U	460	U	450	U	440	U	420	U
2,4-Dichlorophenol	410	U	380	U	460	U	450	U	440	U	420	U
1,2,4-Trichlorobenzene	410	U	380	U	460	U	450	U	440	U	420	U
Naphthalene	410	U	110	J	460	U	450	U	440	U	420	U
4-Chloroaniline	410	U	380	U	460	U	450	U	440	U	420	U
Hexachlorobutadiene	410	U	380	U	460	U	450	U	440	U	420	U
4-Chloro-3-methylphenol	410	U	380	U	460	U	450	U	440	U	420	U
2-Methylnaphthalene	410	U	99	J	460	U	450	U	440	U	420	U
Hexachlorocyclopentadiene	410	U	380	U	460	U	450	U	440	U	420	U
2,4,6-Trichlorophenol	410	U	380	U	460	U	450	U	440	U	420	U
2,4,5-Trichlorophenol	990	U	930	U	1100	U	1100	U	1100	U	1000	U
2-Chloronaphthalene	410	U	380	U	460	U	450	U	440	U	420	U
2-Nitroaniline	990	U	930	U	1100	U	1100	U	1100	U	1000	U
Dimethylphthalate	410	U	380	U	460	U	450	U	440	U	420	U
Acenaphthylene	410	U	380	U	460	U	450	U	440	U	420	U
2,6-Dinitrotoluene	410	U	380	U	460	U	450	U	440	U	420	U
3-Nitroaniline	990	U	930	U	1100	U	1100	U	1100	U	1000	U
Acenaphthene	410	U	380	U	460	U	450	U	440	U	420	U
2,4-Dinitrophenol	990	U	930	U	1100	U	1100	U	1100	U	1000	U
4-Nitrophenol	990	U	930	U	1100	U	1100	U	1100	U	1000	U
Dibenzofuran	410	U	380	U	460	U	450	U	440	U	420	U
2,4-Dinitrotoluene	410	U	380	U	460	U	450	U	440	U	420	U
Diethylphthalate	410	U	380	U	460	U	450	U	440	U	420	U
4-Chlorophenyl-phenyl ether	410	U	380	U	460	U	450	U	440	U	420	U
Fluorene	410	U	380	U	460	U	450	U	440	U	420	U
4-Nitroaniline	990	U	930	U	1100	U	1100	U	1100	U	1000	U
4,6-Dinitro-2-methylphenol	990	U	930	U	1100	U	1100	U	1100	U	1000	U
N-nitrosodiphenylamine	410	U	380	U	460	U	450	U	440	U	420	U
4-Bromophenyl-phenylether	410	U	380	U	460	U	450	U	440	U	420	U
Hexachlorobenzene	410	U	380	U	460	U	450	U	440	U	420	U
Pentachlorophenol	990	U	930	U	1100	U	1100	U	1100	U	1000	U
Phenanthrene	410	U	150	J	460	U	140	J	310	J	420	U
Anthracene	410	U	380	U	460	U	450	U	440	U	420	U
Carbazole	410	U	380	U	460	U	450	U	440	U	420	U
Di-n-butylphthalate	410	U	380	U	460	U	450	U	440	U	420	U
Fluoranthene	410	U	92	J	460	U	350	J	410	J	420	U
Pyrene	410	U	380	U	460	U	330	J	340	J	35	J
Butylbenzylphthalate	410	U	380	U	460	U	450	U	440	U	420	U
3,3'-Dichlorobenzidine	410	U	380	U	460	U	450	U	440	U	420	U
Benzo(a)anthracene	410	U	380	U	460	U	100	J	170	J	420	U
Chrysene	410	U	110	J	460	U	100	J	210	J	420	U
bis(2-Ethylhexyl)phthalate	410	U	380	U	460	U	450	U	440	U	420	U
Di-n-octylphthalate	410	U	380	U	460	U	450	U	440	U	420	U
Benzo(b)fluoranthene	410	U	150	J	460	U	450	U	150	J	420	U
Benzo(k)fluoranthene	410	U	380	U	460	U	450	U	180	J	420	U
Benzo(a)pyrene	410	U	380	U	460	U	450	U	190	J	420	U
Indeno(1,2,3-cd)pyrene	410	U	380	U	460	U	450	U	110	J	420	U
Dibenz(a,h)anthracene	410	U	380	U	460	U	450	U	440	U	420	U
Benzo(g,h,i)perylene	410	U	380	U	460	U	450	U	110	J	420	U

FILENAME: AHZ73.SDG DATE: 01/17/95 TIME: 15:27 CADRE 1.92

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

CASE NO: 23023
SDG NO: AHZ73

SITE: ST. JOHNSBURY DUMP ST. JOHNSBUR
LABORATORY: AMER ANALYTICAL TECH SERV

EPA SAMPLE NUMBER:	AHZ81		AHZ82		AHZ83		AHZ84		AHZ85		AHZ86	
SAMPLE LOCATION:	SD-03		SD-04		SD-05		SD-06		SD-07		SD-08	
LABORATORY SAMPLE NUMBER:	956609		956610		956611		956612		956613		956614	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW		SOIL/LOW	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	12/08/94		12/08/94		12/08/94		12/08/94		12/08/94		12/08/94	
DATE EXTRACTED:	12/09/94		12/09/94		12/09/94		12/09/94		12/09/94		12/09/94	
DATE ANALYZED:	12/20/94		12/21/94		12/21/94		12/21/94		12/21/94		01/10/95	
PERCENT SOLID:	76		86		87		82		81		71	
BNA												
Phenol	430	U	380	U	380	U	400	U	410	U	460	U
bis(2-Chloroethyl) ether	430	U	380	U	380	U	400	U	410	U	460	U
2-Chlorophenol	430	U	380	U	380	U	400	U	410	U	460	U
1,3-Dichlorobenzene	430	U	380	U	380	U	400	U	410	U	460	U
1,4-Dichlorobenzene	430	U	380	U	380	U	400	U	410	U	460	U
1,2-Dichlorobenzene	430	U	380	U	380	U	400	U	410	U	460	U
2-Methylphenol	430	U	380	U	380	U	400	U	410	U	460	U
2,2'-oxybis(1-Chloropropane)	430	U	380	U	380	U	400	U	410	U	460	U
4-Methylphenol	430	U	380	U	380	U	400	U	410	U	460	U
N-Nitroso-di-n-propylamine	96	J	380	U	380	U	400	U	410	U	460	U
Hexachloroethane	430	U	380	U	380	U	400	U	410	U	460	U
Nitrobenzene	430	U	380	U	380	U	400	U	410	U	460	U
Isophorone	430	U	380	U	380	U	400	U	410	U	460	U
2-Nitrophenol	430	U	380	U	380	U	400	U	410	U	460	U
2,4-Dimethylphenol	430	U	380	U	380	U	400	U	410	U	460	U
bis(2-Chloroethoxy) methane	430	U	380	U	380	U	400	U	410	U	460	U
2,4-Dichlorophenol	430	U	380	U	380	U	400	U	410	U	460	U
1,2,4-Trichlorobenzene	430	U	380	U	380	U	400	U	410	U	460	U
Naphthalene	430	U	380	U	380	U	400	U	410	U	460	U
4-Chloroaniline	430	U	380	U	380	U	400	U	410	U	460	U
Hexachlorobutadiene	430	U	380	U	380	U	400	U	410	U	460	U
4-Chloro-3-methylphenol	91	J	380	U	380	U	400	U	410	U	460	U
2-Methylnaphthalene	430	U	380	U	380	U	400	U	410	U	460	U
Hexachlorocyclopentadiene	430	U	380	U	380	U	400	U	410	U	460	U
2,4,6-Trichlorophenol	430	U	380	U	380	U	400	U	410	U	460	U
2,4,5-Trichlorophenol	1000	U	930	U	920	U	980	U	980	U	1100	U
2-Chloronaphthalene	430	U	380	U	380	U	400	U	410	U	460	U
2-Nitroaniline	1000	U	930	U	920	U	980	U	980	U	1100	U
Dimethylphthalate	430	U	380	U	380	U	400	U	410	U	460	U
Acenaphthylene	430	U	380	U	380	U	400	U	410	U	460	U
2,6-Dinitrotoluene	430	U	380	U	380	U	400	U	410	U	460	U
3-Nitroaniline	1000	U	930	U	920	U	980	U	980	U	1100	U
Acenaphthene	430	U	380	U	380	U	400	U	410	U	460	U
2,4-Dinitrophenol	1000	U	930	U	920	U	980	U	980	U	1100	U
4-Nitrophenol	1000	U	930	U	920	U	980	U	980	U	1100	U
Dibenzofuran	430	U	380	U	380	U	400	U	410	U	460	U
2,4-Dinitrotoluene	430	U	380	U	380	U	400	U	410	U	460	U
Diethylphthalate	430	U	380	U	380	U	400	U	410	U	460	U
4-Chlorophenyl-phenyl ether	430	U	380	U	380	U	400	U	410	U	460	U
Fluorene	430	U	380	U	380	U	400	U	410	U	460	U
4-Nitroaniline	1000	U	930	U	920	U	980	U	980	U	1100	U
4,6-Dinitro-2-methylphenol	1000	U	930	U	920	U	980	U	980	U	1100	U
N-nitrosodiphenylamine	430	U	380	U	380	U	400	U	410	U	460	U
4-Bromophenyl-phenylether	430	U	380	U	380	U	400	U	410	U	460	U
Hexachlorobenzene	430	U	380	U	380	U	400	U	410	U	460	U
Pentachlorophenol	1000	U	930	U	920	U	980	U	980	U	1100	U
Phenanthrene	430	U	380	U	380	U	400	U	410	U	460	U
Anthracene	430	U	380	U	380	U	400	U	410	U	460	U
Carbazole	430	U	380	U	380	U	400	U	410	U	460	U
Di-n-butylphthalate	430	U	380	U	380	U	400	U	410	U	460	U
Fluoranthene	430	U	380	U	380	U	400	U	410	U	460	U
Pyrene	140	J	380	U	44	J	23	J	65	J	460	U
Butylbenzylphthalate	430	U	380	U	380	U	400	U	410	U	460	U
3,3'-Dichlorobenzidine	430	U	380	U	380	U	400	U	410	U	460	U
Benzo(a)anthracene	430	U	380	U	380	U	400	U	410	U	460	U
Chrysene	430	U	380	U	380	U	400	U	410	U	460	U
bis(2-Ethylhexyl)phthalate	430	U	380	U	380	U	400	U	410	U	460	U
Di-n-octylphthalate	430	U	380	U	380	U	400	U	410	U	35	J
Benzo(b)fluoranthene	430	U	380	U	380	U	400	U	410	U	460	U
Benzo(k)fluoranthene	430	U	380	U	380	U	400	U	410	U	460	U
Benzo(a)pyrene	430	U	380	U	380	U	400	U	410	U	460	U
Indeno(1,2,3-cd)pyrene	430	U	380	U	380	U	400	U	410	U	460	U
Dibenz(a,h)anthracene	430	U	380	U	380	U	400	U	410	U	460	U
Benzo(g,h,i)perylene	430	U	380	U	380	U	400	U	410	U	460	U

FILENAME: AHZ73.SDG DATE: 01/17/95 TIME: 15:27 CADRE 1.92

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

Site: St. Johnsbury Dump
Laboratory: American Analytical & Technical Services
Disk: 6101012-DV08
File: 23023PSR.WK4

CLP PESTICIDE/PCB ORGANIC ANALYSIS
CASE 23023, SDG AHZ73
SOIL ANALYTICAL RESULTS (ug/kg)

Sample Location	SS-01	SS-02	SS-03	SS-04	SD-01	SD-02	SD-03	SD-04	SD-05	SD-06
Traffic Report Number	AHZ75	AHZ76	AHZ77	AHZ78	AHZ79	AHZ80	AHZ81	AHZ82	AHZ83	AHZ84
Remarks				DUP AHZ77					DUP AHZ82	
Sampling Date	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94	07-Dec-94
Extraction Date	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94	09-Dec-94
Analysis Date	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94	21-Dec-94
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Percent Solid	81.0%	86.0%	72.0%	73.0%	75.0%	78.0%	76.0%	86.0%	87.0%	82.0%
PESTICIDE/PCB COMPOUND										
alpha-BHC	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
beta-BHC	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
delta-BHC	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
gamma-BHC (Lindane)	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
Heptachlor	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
Aldrin	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
Heptachlor epoxide	2.1 U	2.0 U	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
Endosulfan I	2.1 UJ	2.0 UJ	2.4 UJ	2.3 UJ	2.3 UJ	2.2 UJ	2.2 UJ	2.0 UJ	2.0 UJ	2.1 UJ
Dieldrin	4.1 U	R	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
4,4'-DDE	4.1 U	18 UJ	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
Endrin	4.1 U	10 J	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
Endosulfan II	4.1 U	3.8 U	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
4,4'-DDD	4.1 U	3.8 U	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
Endosulfan sulfate	4.1 U	3.8 U	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
4,4'-DDT	4.1 U	R	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
Methoxychlor	21 U	20 U	24 U	23 U	23 U	22 U	22 U	20 U	20 U	21 U
Endrin ketone	4.1 U	3.8 U	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
Endrin aldehyde	4.1 U	R	4.6 U	4.5 U	4.4 U	4.2 U	4.3 U	3.8 U	3.8 U	4.0 U
alpha-Chlordane	2.1 U	R	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	2.0 U	2.0 U	2.1 U
gamma-Chlordane	2.1 U	R	2.4 U	2.3 U	2.3 U	2.2 U	2.2 U	R	2.0 U	2.1 U
Toxaphene	210 U	200 U	240 U	230 U	230 U	220 U	220 U	200 U	200 U	210 U
Aroclor-1016	41 U	38 U	46 U	45 U	44 U	42 U	43 U	38 U	38 U	40 U
Aroclor-1221	83 U	77 U	93 U	92 U	89 U	86 U	88 U	77 U	77 U	82 U
Aroclor-1232	41 U	38 U	46 U	45 U	44 U	42 U	43 U	38 U	38 U	40 U
Aroclor-1242	41 U	38 U	46 U	45 U	44 U	42 U	43 U	38 U	38 U	40 U
Aroclor-1248	41 U	38 U	46 U	45 U	44 U	42 U	43 U	38 U	38 U	40 U
Aroclor-1254	41 U	430 J	46 U	45 U	44 U	42 U	43 U	38 U	38 U	40 U
Aroclor-1260	41 U	38 U	46 U	45 U	44 U	42 U	43 U	67 J	38 UJ	40 U
								38 U	38 U	40 U

Sample results are reported on dry weight basis.
J - The associated numerical value is an estimated quantity.
U - The compound was not detected. The associated numerical value is the compound quantitation limit.
UJ - The compound was not detected. The compound quantitation limit is an estimated value.
R - The datum was rejected.

Site: St. Johnsbury Dump
Laboratory: American Analytical & Technical Services
Disk: 6101012-DV08
File: 23023PSR.WK4

CLP PESTICIDE/PCB ORGANIC ANALYSIS
CASE 23023, SDG AHZ73
SOIL ANALYTICAL RESULTS (ug/kg)

Sample Location	SD-07	SD-08
Traffic Report Number	AHZ85	AHZ86
Remarks		
Sampling Date	07-Dec-94	07-Dec-94
Extraction Date	09-Dec-94	09-Dec-94
Analysis Date	21-Dec-94	21-Dec-94
Dilution Factor	1.0	1.0
Percent Solid	81.0%	71.0%
PESTICIDE/PCB COMPOUND		
alpha-BHC	2.1 U	2.4 U
beta-BHC	2.1 U	2.4 U
delta-BHC	2.1 U	2.4 U
gamma-BHC (Lindane)	2.1 U	2.4 U
Heptachlor	2.1 U	2.4 U
Aldrin	2.1 U	2.4 U
Heptachlor epoxide	2.1 U	2.4 U
Endosulfan I	2.1 U	2.4 U
Dieldrin	2.1 UJ	2.4 UJ
4,4'-DDE	4.1 U	4.6 U
Endrin	4.1 U	4.6 U
Endosulfan II	4.1 U	4.6 U
4,4'-DDD	4.1 U	4.6 U
Endosulfan sulfate	4.1 U	4.6 U
4,4'-DDT	4.1 U	4.6 U
Methoxychlor	4.1 U	4.6 U
Endrin ketone	21 U	24 U
Endrin aldehyde	4.1 U	4.6 U
alpha-Chlordane	4.1 U	4.6 U
gamma-Chlordane	2.1 U	2.4 U
Toxaphene	2.1 U	2.4 U
Aroclor-1016	210 U	240 U
Aroclor-1221	41 U	46 U
Aroclor-1232	83 U	94 U
Aroclor-1242	41 U	46 U
Aroclor-1248	41 U	46 U
Aroclor-1254	41 U	46 U
Aroclor-1260	41 U	46 U

Sample results are reported on dry weight basis.
J - The associated numerical value is an estimated quantity.
U - The compound was not detected. The associated numerical value is the compound quantitation limit.
UJ - The compound was not detected. The compound quantitation limit is an estimated value.
R - The datum was rejected

ATTACHMENT B

St. Johnsbury Dump

Inorganic Analytical Results and Sample Detection Limits
CDM Federal Programs Corporation

December 7, 1994

Site: SI Johnsbury Dump
Laboratory: American Analytical Technical Services - LA
Disk: 7710023-DV08
File: 23023MSR.WK4

CLP INORGANIC ANALYSIS
CASE 23023, SDG MAFX75
SOIL ANALYTICAL RESULTS (mg/Kg)

Sample Location		SS-01	SS-02	SS-03	SS-04	SD-01	SD-02	SD-03	SD-04	SD-05
Traffic Report Number		MAFX75	MAFX76	MAFX77	MAFX78	MAFX79	MAFX80	MAFX81	MAFX82	MAFX83
Remarks					DUP MAFX77					DUP MAFX82
Sampling Date		12/07/94	12/07/94	12/07/94	12/07/94	12/07/94	12/07/94	12/07/94	12/07/94	12/07/94
Percent Solid		81.5%	87.2%	72.7%	76.1%	69.4%	75.7%	69.2%	83.1%	84.4%
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
INORGANIC ANALYTES										
Aluminum	P	10700	6270	9790	8220	8220	8070	9460	4710	5720
Antimony	P	2.9 UJ	3.9 J	3.3 UJ	3.2 UJ	3.5 UJ	3.2 UJ	3.5 UJ	2.9 UJ	2.8 UJ
Arsenic	P	1.3 J	5.4	4.2	1.0 U	1.1 U	1.0 U	1.1 U	0.94 U	0.92 U
Barium	P	31.1	124	56.1	45.9	71.3	35.7	37.2	18.3	23.5
Beryllium	P	0.20	0.31	0.18	0.14 J	0.09 U	0.08 U	0.09 U	0.07 U	0.07 U
Cadmium	P	0.98 J	3.5 J	1.1 J	1.7 J	1.1 U	1.0 U	1.1 U	0.91 U	0.9 U
Calcium	P	2520	12100	35000	26300	14600 J	11500 J	12200 J	78500 J	9210 J
Chromium	P	21.3 J	55.1 J	19.5 J	16.7 J	20.6 J	17.9 J	21.2 J	9.9 J	14.0 J
Cobalt	P	7.8	6.5 J	8.7	7.9	4.7	4.8	5.2	2.2 J	3.2
Copper	P	16.9	542	29.2	24.8	27.0 J	17.5 J	21.5 J	6.6 UJ	26.1 J
Iron	P	17200	47500	19300	16900	13400	11900	13700	10700	10100
Lead	P	7.7	255	16.1	13.2	173 J	12.2 J	10.2 J	5.7 J	10.6 J
Magnesium	P	5540	1500	10500	8500	5040 J	4950 J	5910 J	6270 J	3080 J
Manganese	P	560 J	1070 J	498 J	426 J	496 J	369 J	275 J	624 J	276 J
Mercury	CV	0.12 U	0.11 U	0.14 U	0.13 U	0.14 U	0.13 U	0.14 U	0.12 U	0.12 U
Nickel	P	30.6	79.6	31.0	27.5	25.9	19.2	21.5	8.4 J	11.0
Potassium	P	1140	699	2860	2200	1530	1320	1570	847	1000
Selenium	P	0.91 U	0.85 U	1.0 U	0.97 U	1.1 U	0.98 U	1.1 U	0.89 U	0.88 U
Silver	P	0.49 U	0.46 UJ	0.55 U	0.53 U	0.58 U	0.53 U	0.58 U	0.48 UJ	0.47 U
Sodium	P	225 U	194 UJ	468 U	322 U	397 U	437 U	576 U	321 UJ	266 U
Thallium	P	1.3 UJ	1.2 UJ	1.5 UJ	1.4 UJ	1.6 UJ	1.4 UJ	1.6 UJ	1.3 UJ	1.3 UJ
Vanadium	P	20.4	15.6	20.9	17.6	21.8	16.0	18.4	11.1	11.8
Zinc	P	36.0	260	58.9	52.0	115	80.9	46.5	24.5 U	30.8
Cyanide	CA	0.61 U	0.57 U	0.68 U	0.66 U	0.72 U	0.65 U	0.72 U	0.60 U	0.72

Analytical Method
P ICP
CV Cold Vapor
CA Midi - Distillation Spectrophotometric Analysis

Sample Results are reported on dry weight basis.
J - The associated numerical value is an estimated quantity.
U - The analyte was not detected. The associated numerical value is the analyte detection limit.
UJ - The analyte was not detected. The analyte detection limit is an estimated value.

Site: St. Johnsbury Dump
Laboratory: American Analytical Technical Services - LA
Disk: 7710023-DV08
File: 23023MSR.WK4

CLP INORGANIC ANALYSIS
CASE 23023, SDG MAFX75
SOIL ANALYTICAL RESULTS (mg/Kg)

Sample Location		SD-06	SD-07	SD-08						
Traffic Report Number		MAFX84	MAFX85	MAFX86						
Remarks										
Sampling Date		12/07/94	12/07/94	12/07/94						
Percent Solid		79.8%	77.2%	68.0%						
Dilution Factor		1.0	1.0	1.0						
INORGANIC ANALYTES										
Aluminum	P	7950	7390	8070						
Antimony	P	3.0 UJ	3.1 UJ	3.5 UJ						
Arsenic	P	0.98 U	1.0 U	1.1 U						
Barium	P	39.9	28.7	34.8						
Beryllium	P	0.08 U	0.08 U	0.09 U						
Cadmium	P	0.95 U	0.98 U	1.1 U						
Calcium	P	13100 J	8390 J	9430 J						
Chromium	P	19.1 J	16.9 J	19.2 J						
Cobalt	P	4.6	4.4	5.3						
Copper	P	12.9 J	12.5 J	25.1 J						
Iron	P	11900	10800	11400						
Lead	P	7.7 J	7.5 J	11.6 J						
Magnesium	P	5150 J	4780 J	4880 J						
Manganese	P	390 J	285 J	457 J						
Mercury	CV	0.13 U	0.13 U	0.23 J						
Nickel	P	17.2	14.2	19.5						
Potassium	P	1660	1430	1180						
Selenium	P	0.93 U	0.96 U	1.1 U						
Silver	P	0.50 U	0.52 U	0.59 U						
Sodium	P	260 U	283 U	296 U						
Thallium	P	1.4 UJ	1.4 UJ	1.8 UJ						
Vanadium	P	16.4	15.1	16.2						
Zinc	P	43.6	36.5	53.4						
Cyanide	CA	0.63 U	0.65 U	0.74 U						

Analytical Method
P ICP
CV Cold Vapor
CA Midi - Distillation Spectropholometric Analysis

Sample Results are reported on dry weight basis.
J - The associated numerical value is an estimated quantity.
U - The analyte was not detected. The associated numerical value is the analyte detection limit.
UJ - The analyte was not detected. The analyte detection limit is an estimated value.